FACTS ON FILE

EMSP

Environmental Management Science Program

Project Highlights

The Environmental Management Science Program (EMSP) is funding basic research projects focused on solving the most difficult problems that threaten the closure plans of DOE sites. This fact sheet highlights just one.

Determining Significant Endpoints for Ecological Risk Analysis

This project seeks to establish a protocol for assessing risks to non-human populations exposed to environmental stresses typically found on many DOE sites. Risk analysis procedures for humans use the individual as the "unit" of observation, and the individual's health as the risk assessment endpoint. For ecological risk assessments, however, the proper endpoint is much debated because the appropriate unit of interest for nonhumans may not be individuals; risk might be assessed more properly at higher levels of biological organization, such as the population, community, or ecosystem.

Locations: Savannah River Ecology Laboratory, Colorado State University

Year of Award: 1996

Amount of Award: $897,666

Office of Environmental Management (EM) Problem Area: Health/Ecology/Risk

Office of Science (SC) Scientific Category/Sub-Category: Health Science/Risk Assessment

Research Value/Impact: Currently, researchers have had great success in adapting a molecular technique used to measure stable chromosomal aberrations in human atomic-bomb survivors to a biological dosimeter for determining ecological risks. Stable aberrations, known as reciprocal translocations, unlike others, remain detectable for periods long after the initial exposure. Until recently, however, techniques development and application of the approach for ecological risk analyses would have required a monumental effort for each organism studied. It is now possible to achieve the same goal with much less effort in isolating the necessary probes by using chromosome microdissection techniques followed by polymersase chain reaction amplification.

Lead Principal Investigator:
Thomas G. Hinton
Savannah River Ecology Laboratory
(803) 557-7454

Other Principal Investigators:
Justin Congdon
Savannah River Ecology Laboratory
(803) 725-5341

David Scott
Savannah River Ecology Laboratory
(803) 725-0387

Chris Rowe
University of Puerto Rico
(787) 764-0000

Joel Bedford
Colorado State University
(970) 491-7492

F. Ward Whicker
Colorado State University
(970) 491-5343

More Information on the Web:
http://www.em.doe.gov/science or
http://www.id.doe.gov/emsystems/emsp